Institute for Research on the Economics of Taxation.

Statement of Stephen J. Entin
Before the House Committee on Rules
Subcommittee on Legislative and Budget Process
Hearing On
Federal Revenue and Expenditure Estimating
May 2, 2002

Summary

Although most private sector forecasting models recognize that changes in tax rates or other features of the tax code affect the aggregate economy in various ways, government revenue estimators at the Treasury and the Joint Committee on Taxation (JCT) deliberately ignore tax-driven effects on the aggregate economy when attempting to measure the revenue consequences of proposed tax changes.

Government revenue estimators claim their models have dynamic elements because they sometimes allow for modest changes in which products are produced, where income is earned, and how income is spent as a result of tax changes. But because the models assume that tax changes never affect total production, total employment, total earnings, total saving and investment, economic growth, or any other features of the aggregate economy, government revenue estimation models are essentially static.

When tax changes improve production incentives at the margin, output and incomes rise, which expands the tax base and yields positive revenue feedbacks. When tax changes worsen marginal production incentives, they yield negative revenue feedbacks. By ignoring these effects, the Treasury and the JCT deliver highly misleading revenue estimates, and highly misleading advice to the Congress and the Administration.

Tax reforms with large positive work and saving incentives — such as an across-the-board cut in tax rates, a lower capital gains tax rate, faster capital cost recovery allowances, and elimination of the alternative minimum tax and the estate tax — would have much smaller revenue costs than government estimators claim. Spending increases that have no positive incentive effects, or transfer payments that discourage work or saving, would decrease GDP, not add to it, and would cost more than initially forecast by reducing government revenues.

Adopting a more accurate, dynamic method for predicting the budgetary effects of policy proposals by taking account of the effects on the economy would do much more than improve federal budget forecasting. It would inform policy makers of the economic consequences of proposed changes, and would help them to choose among the policy initiatives.

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Introduction

The House Rules Committee's Subcommittee on Legislative and Budget Process is to be commended for holding a hearing on federal revenue and expenditure estimating. Chairman Pryce has asked how well the economic forecasting and revenue estimating models used by the Treasury, the Joint Committee on Taxation (JCT) and the Congressional Budget Office (CBO) perform. The Committee's immediate concern is to examine the accuracy of the information these agencies provide to the Congress in its work on budget and tax issues. As we shall see, current forecasting methods generally ignore the consequences of changes in federal tax and spending policies on the economy, which distorts the estimates of the effects of the policy changes on the federal budget.

Adopting a more accurate, dynamic method for predicting the budgetary effects of policy proposals by taking account of their effects on the economy would certainly improve federal budget forecasting. In fact, however, it would do far more than that. It would inform policy makers of the economic consequences of proposed policy changes, and would help them to choose more wisely among the various possible policy initiatives. The result could be a far better federal tax system, and a level and structure of federal outlays more conducive to a strong economy.

Federal Reserve Chairman Alan Greenspan testified on the forecasting issue at a joint hearing of the House and Senate Budget Committees on January 10, 1995. He observed, "I don't think anybody who has looked at this system in considerable detail would say that the official scoring procedures which we are employing at this particular stage are realistic in terms of making judgments of choosing policy A versus policy B. They are useful wholly for the purpose of restraining expenditures and keeping the deficit from running away. They are not devices for appropriate policy choices."

At the same hearing, Norman Ture, IRET's founder and a leading tax expert in Washington for many decades, concluded, "One thing can certainly be said about the existing system; it certainly produces wrong estimates in the case of all but a few tax changes."

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Responsibilities of federal revenue estimators. The Treasury and JCT revenue estimators have two main chores. One is to prepare revenue forecasts for the federal budget in January and the midyear review. These are based on the economic forecasts they receive from the Administration economics team and the CBO, respectively. (The Administration forecast is prepared by economists from Treasury, the Council of Economic Advisors (CEA), and the Office of Management and Budget (OMB), and is approved by the Secretary of the Treasury, the Chairman of the CEA, and the Director of OMB — the "troika".) Second, the Treasury and JCT revenue estimators also attempt to measure the revenue consequences of various tax bills introduced during the year.

Economic forecasts in the Federal Budget submissions and Budget Resolutions. The level of detail in the economic assumptions required for federal budget calculations is not great. The budgeteers need a projection of real and nominal GDP, inflation, and the incomes of individuals and businesses by type and distribution, the amount of investment (deductible for tax purposes), interest rates (to know federal outlays on interest), and unemployment. Some of these variables affect revenues, some affect spending. Private models go into much more detail about the various sectors of the economy, but give less attention to details of income by type and distribution and to the fine details of federal outlays.

The Administration does not rely on an in-house model to forecast the economy. The "troika" agencies, Treasury, OMB, and the CEA, settle on an economic projection to guide the budget work. They take their cue from private forecasters, with some modest adjustments factored in to reflect what the Administration believes its proposed policy changes might do. These are not generally determined by running any specific model, but rather reflect a reasonable guess, based on the economics literature and the private models, about what the policy changes might accomplish. The economic assumptions are then passed on to the Treasury for revenue estimates, and to the various government departments and agencies for outlay estimates.

Similarly, the CBO settles on its annual and revised mid-year economic projections after consultations with private sector and academic advisors, and after looking at what the private modeling community is forecasting. The CBO includes effects of enacted policy changes, and, on occasion, some assumed future policy adjustments. CBO then estimates federal outlays, and the JCT estimates revenues, based on the economic assumptions.

As I understand it, the CBO has no independent model of its own. It has developed a framework for, in effect, blending the estimates of a number of private sector models to achieve a "consensus" projection for the economy based on the CBO's projections of government spending trends and tax policy, including legislated changes, and of Federal Reserve policy and other factors. The private models are of different degrees of sophistication and quality. They have different ways of dealing with various policy changes and different frameworks of analysis, and they place different weights on how much various policy changes affect the economy. While any given private sector model may be internally consistent (for better or for worse, depending on the quality of the theory behind the model), blending results from several models cannot yield an internally consistent outcome.

sheets. To repeat, the official government revenue estimation models are essentially static; that is, they assume that aggregate economic performance and the tax base do not change as a result of a change in the tax rates or regulations.

By scoring policies assuming the same economic path for old law and new, the current scoring methodology overstates the cost of any tax or spending change that boosts economic performance (because the old law would not have raised as much revenue from the weaker economy absent the policy change). Conversely, it overstates the budget gains from any tax or spending change that worsens economic performance (because the old law would have generated more revenue from a stronger economy). This methodology of measuring the budget impact of tax and spending changes based on a single static set of economic assumptions makes it harder to enact policies that improve the economy and makes it easier to enact policy changes that weaken the economy.

To a very limited extent, the government's revenue estimating methods allow for some modest changes in behavior in the case of selective tax changes, such as changes in excise taxes. They may assume, for example, that an increase in the tobacco excise tax will reduce the quantity of cigarettes sold, and will factor that change in the tax base into their calculation of the revenue effect of a change in the cigarette tax rate. They assume, however, that the resources driven out of the tobacco industry will immediately find alternative employment in other uses producing goods of equal value and earning income of equal value. Consequently, the estimates do not include any macroeconomic consequences or resulting revenue changes from the excise tax increase. This simplifying assumption is incorrect even for selective excise taxes. Resources driven out of an industry where they had been put to their highest value added use will earn somewhat less in alternative employment. However, the macroeconomic consequences of selective excise taxes, while not zero, are at least not enormous.

The situation is very different, however, if the tax change has important incentive effects, such as changes in individual or corporate marginal income tax rates or the payroll tax rate, or an across-the-board revision of capital consumption allowances. (The latter affects the calculation of taxable income resulting from, and thereby changes the effective marginal tax rate on, all depreciable investment projects.) These changes affect all labor services and/or all capital services or saving. If these marginal tax rates are increased, there are no alternative uses into which these resources can migrate to escape the tax hike except to leave the marketplace altogether. Labor flees to leisure. Saving and investment shrink in favor of consumption. The reactions are in the opposite direction in the event of marginal tax rate reductions. These tax changes have substantial macroeconomic effects that cause significant changes in the tax base, which feed back on the change in revenue that can be expected from the tax change. Changes in income and employment also affect federal outlays on income maintenance and retirement outlays. The Treasury and JCT revenue estimators ***rigorously and deliberately*** ignore such effects on the aggregate economy, the total tax base, and outlays.

The estimators do try to calculate what a tax change such as depreciation reform might do to the timing of investment write-offs. Faster depreciation might accelerate the write-offs for

latter usually try to factor in behavioral changes within the specific program area, but are unlikely to attempt to incorporate aggregate economic changes.

Some private models of the impact of government policy changes on the economy use a neo-classical framework, in which tax and spending changes are assumed to affect behavior by changing the price signals in the economy. The macroeconomic theory behind such models is built up from basic microeconomics. The output of goods and services is determined by the quantities of labor and capital services that are offered and employed. Certain types of tax cuts lower the after-tax cost of incremental saving (at the margin) relative to consumption, or lower the incremental tax-inclusive cost of capital that governs investment decisions (at the margin), or they affect the time cost of working a bit longer to obtain additional market goods and services by giving up a marginal bit of leisure. People offer more or less labor and more or less capital to the production process as tax rates on the marginal activities are reduced or increased. Government purchases of goods and services reduce the availability and raise the cost of the resources remaining for private sector use. Greater hiring by government drives up wages and affects the labor costs of private employers. Government purchases of goods and services raise the cost of such items to the private sector. Such marginal price changes induce individuals and firms to alter their behavior. Higher factor costs result in a reduction of private sector output as the government expands. The magnitudes of these impacts depend on the "elasticities" of supply of, and demand for, the factors and products.

Others models use a Keynesian approach. They assume that shifts in tax policy act by changing disposable income of individuals and the after-tax cash flows of businesses. These changes in disposable income are assumed to trigger subsequent changes in private spending, saving, or investment totals, boosting "aggregate demand", which then boosts output. Government spending changes are assumed to affect aggregate demand as well. The amount of the induced change in private spending is related by certain rules of thumb (based on so-called "propensities" to consume, save, or invest) to the dollar amounts of the policy shifts. In other words, tax cuts work by giving people and businesses money to spend, and tax increases slow the economy by taking money away from them.

Other models paint a complex picture of the results of fiscal policy changes assuming various reactions by the Federal Reserve and based on various theories (some of them suspect) as to how shifts in monetary policy affect the credit markets, price expectations, and the economy. These efforts result in scenarios that are so speculative that they obscure rather than illuminate the consequences of the fiscal policy changes per se.

The several approaches to modeling the economy can yield very different predictions about the consequences of a change in federal taxes and spending. The JCT and the Treasury often point to these differences and uncertainties as an excuse for not trying to factor any macroeconomic responses into their revenue estimates, as if the staffs of the Committee and the Treasury cannot exercise any independent judgment as to the relative merits of the differing theories and methods. (For which approaches are sound and unsound, see the reply to question 4, below.)

than others. Many modeling efforts are based on obsolete or incorrect theories, and are right in their forecast or in their analysis of a policy change only by accident.

For example, tax cuts or government spending increases do not work by giving people money to spend to boost "aggregate demand". That is, they do not affect the economy by initially raising people's after-tax income and thereby triggering additional spending. These "income effects" are canceled out by the need to finance government spending. This is called the government budget constraint.

Suppose the government raises its spending by a billion dollars. To pay for it, it must either raise taxes by a billion dollars or borrow an additional billion dollars from the public (if the government is running a deficit) or pay down the national debt by a billion dollars less than otherwise (if the government is running a surplus). Similarly, a billion dollar tax cut must be paid for by cutting government spending by a billion dollars or by borrowing more or paying down less debt.

All of these financing techniques take back from the public an amount of money equal to the presumed "stimulus" from the spending hike or tax cut, resulting in no initial change in the spending power of the public from the change n fiscal policy. If the Federal Reserve steps in and buys the added government debt, it will expand the money supply, which constitutes a change in monetary policy, not fiscal policy. Faster money creation can increase nominal spending, but it will also raise the price level and impose an inflation tax on money and bond holders.

Consequently, fiscal policy changes do not work by initially altering disposable income. If they work at all, they do so by altering the prices received by labor and providers of capital services, that is, by changing the after-tax incentives for incremental effort, saving, or investing in plant and equipment or structures. Put another way, tax reductions at the margin reduce the cost of hiring labor or utilizing capital in the production process. The added inputs offered to and employed by the market as a result of the lower tax rate on marginal activity produce additional goods and services, and the owners of the added inputs receive payments equal to the value of their output. The added factor income can then be used to buy the added national production. Supply and demand rise together, induced by the price effects of the tax reduction on marginal inputs and product. Only those types of tax changes that have these cost-cutting, incentive-boosting consequences "at the margin" raise GDP. Tax changes not at the margin have no impact on real output; the government simply gives money away with one hand and borrows it back with the other.

Insofar as government or private sector modelers are experimenting with models that are driven by income effects, and are basing their economic forecasts on them, their predictions are suspect. The models are based on an inaccurate theory that assumes that government spending and any sort of tax cut are likely to expand output and employment, when in fact that is not the case. Such models may, by accident, predict the expansion that will result from a tax cut "at the

account of the government's absorption of real resources as well as the government budget constraint.

To predict the economic and budgetary repercussions of tax changes in a manner that reflects the real workings of the economy, the model should treat tax changes as affecting the after-tax returns at the margin to suppliers of labor and capital (or gross-of-tax costs at the margin to the employers of labor and capital), triggering a change in the cost, supply, and employment of these inputs.

Government spending on goods and services is generally counted as part of the GDP at cost. Wages of federal employees and government consumption of supplies are recorded as part of current output. Government investment is counted over time as it is depreciated. Government employment and purchases of goods and services affect the rest of the economy by altering the cost and availability of real resources to the private sector. The more resources the government absorbs, the fewer are left for the private sector, the higher their cost will be, and the lower private output will be. Consequently, government spending on goods and services cannot add as much to the GDP as their direct cost would indicate. Government spending's impact on the rest of the economy should be factored into the analysis of the cost of the programs.

Furthermore, while private sector investors calculate whether their contemplated use of resources will generate at least as much value as competing uses of the resources (match the "opportunity cost" by generating at least a market rate of return), government spending is not subject to that test. Government projects and programs add to the GDP only insofar as their returns exceed those of alternative private or public activities; to the extent they fall short, they reduce output. Consequently, government spending, even when it represents investment in infrastructure or human capital, can either increase or reduce GDP according to its quality. This suggests also that government spending should be subject to a rigorous cost-benefit analysis, and compared with the returns available on private uses of the resources.

Changes in government transfer and subsidy programs should be treated according to how they reduce or increase marginal incentives to work or save, not as merely shifting an unchanged amount of income from one person to another. Transfers can raise the cost of working, reduce the cost of leisure, and penalize individuals who have acquired assets through saving by reducing their eligibility for assistance. Subsidies alter the market price signals that direct the allocation of resources. They enable producers of the subsidized products to bid more for resources than other potential buyers, and thereby shift resources to production of more of the subsidized items and away from production of goods which the consumers had valued more highly. The resulting inefficiencies reduce real output in the process. The models should show these negative effects of transfers and subsidies.

So-called "life cycle" models that assume that individuals have "target" levels of retirement saving, and reduce their saving if lower taxes enable them to reach their targets more easily, should be scrapped in favor of models that reflect the greater lifetime income

capital is not restricted to the existing capacity of the domestic capital goods industry. Additional machinery and vehicles can be put into service quickly by adding production capacity and by importing investment goods. The stock of commercial and residential buildings can be increased speedily by shifting resources into the construction trades. The real-world gains from adopting a more saving and investment friendly tax base would come quickly, not slowly, in the dynamic, integrated world economy. Our economic models should be redesigned to reflect that reality.

Recent efforts by the JCT to model the effects of fundamental tax reform involved submissions from many private modelers, some of whom assumed a largely closed economy, some a more open economy. The results were quite different. The JCT and the CBO should draw two lessons. First, fundamental tax reform can yield large benefits, as predicted by the open models. Second, the predictions of the closed models that there is little benefit to be had from tax reform derive quite clearly from their unrealistic assumption of an economy isolated from the rest of the world. Any model developed by the JCT or the CBO for their own use in the future should be open and neo-classical in form.

Reform requires speed, flexibility, and accountability. The JCT is moving slowly toward new estimation methods and an in-house economic model. The Treasury has not even begun. They must be urged, respectively, to move faster and to get started for the good of the country.

At the prompting of many economists and policy officials, the JCT is looking at the possibility of moving away from the static revenue estimation convention toward a more accurate dynamic estimation procedure. However, it seems reluctant to trust the predictions of pure neo-classical open-economy models that the economy responds strongly to well-crafted policy changes. As it moves away from the old Keynesian disposable income approach to modeling that was popular in the 1950s and 1960s, it seems inclined to adopt theories that suggest that dynamic economic changes are small and not worthy of consideration in scoring tax proposals.

There are several steps that can be taken to encourage the JCT to keep an open mind. As it tests each theory and each new version of its model, it can make "backcasts" that try to "predict" the known effects of historical policy changes. It can also make predictions about the impact of new policy initiatives as they are implemented. The JCT should be required to keep track of how well each theory and each version of the model performs in such experiments and in practice, and to report periodically to the Congress and the public on the performance of each effort. This will enable the JCT to learn from failures to predict, and motivate it to change its techniques and preferred theories when the old techniques and theories fail to perform. Very importantly, the JCT should make available to the public the equations of the model and a discussion of the data sources and assumptions that underlie it, so that the models may be peer reviewed for technical and theoretical merit. The process will be a lot of work, and will require flexibility in thinking and willingness to test alternative views, but the Committee staff is certainly capable of meeting the challenge. The rewards for the country will be enormous if the job is done well.